Sandia National Laboratories

PROPOSAL FOR ADMINISTRATIVE NO FURTHER ACTION ENVIRONMENTAL RESTORATION SITE 135, BUILDING 906 SEPTIC SYSTEM OPERABLE UNIT 1303

August 1994

Environmental
Restoration
Project

United States Department of Energy
Albuquerque Operations Office

PROPOSAL FOR ADMINISTRATIVE NO FURTHER ACTION

SITE 135, Bldg. 906 Septic System
OU 1303

SANDIA NATIONAL LABORATORIES/NEW MEXICO

1.0 INTRODUCTION

Sandia National Laboratories/New Mexico (SNL/NM) is proposing an administrative No Further Action (NFA) decision for Environmental Restoration (ER) Site 135, Bldg. 906 Septic System, Operable Unit (OU) 1303.

Background information concerning ER Site 135 is limited. Building 906 originally was built for the decontamination of radioactively contaminated weapon components returned from the Nevada Test Site (NTS) and was most recently used for storage purposes until it was closed in May 1991. Various surveys and soil sampling was performed at this area. Results are summarized below.

2.0 HISTORY OF UNIT

Building 906 was constructed in 1950 and is located in the central part of Technical Area (TA)-II, about 125 feet west of Building 920 (Attachment 1). It is approximately 900 square feet and contains a fume hood sink and two floor drains, all of which are connected to the septic system. No toilet or septic tank was ever installed. The original septic leachfield, on the west side of the building, included a dry well that was connected to the laboratory drain system. The leachfield consists of four-inch perforated lines in two gravel-filled trenches; the trenches measure two feet by two feet by 20 feet. The area of the dry-well cross section is approximately 11 square feet. The dry well was used from 1950 to 1978, when it was disconnected from the septic drain system. Depth to the dry well base is not known. In the late 1970s, a shower was installed in the northern end of the building. At that time, the shower drain was connected to the outside laboratory drain.

Information regarding early operations at Building 906 and the types and amounts of hazardous materials that may have been used there is sparse. It is known that test materials returned from the NTS were stored and cleaned in the building. These materials may have been contaminated with metals, including lead, zinc, and lithium, and radioactive constituents, including uranium, tritium, and fission products. High Explosive (HE) compounds and hexafluorine also may have been stored in the building during this time. In the 1960s, paints and solvents, including trichloroethylene (TCE), trichloroacetic acid (TCA), and acetone were stored there. Between 1978 and 1980, leaking transformers containing polychlorinated biphenyls (PCBs) may have been temporarily stored in the building. Herbicides also may have been used near the west side of the building. During the 1980s, the building was used as a chemical laboratory and for conducting electrical battery research and development.

3.0 EVALUATION OF RELEVANT EVIDENCE

In order to determine that no potential threats exist to human health or the environment at this site, environmental testing was conducted. Testing included a surface radiation survey, passive soil-vapor survey, geophysical survey, and soil sampling. As summarized below, results indicate that further investigation is not necessary and that Site 135 should be removed from the ER Site List.

On March 20, 1994, a surface radiation survey was performed over the Building 906 septic system leachfield area. The surface area surrounding Building 906 has been identified as ER Site #44, Decontamination Area. The radiation survey was performed using a gamma scintillometer, at six-foot centers (100% coverage) over the entire site area, and a pressurized ionization chamber (PIC). In the area west of Building 906, background activities were measured between 11 to 13 mR/h with the PIC. Three areas, all within 15 feet of the building, were identified with gamma activity that was 30 percent or greater than the natural background. These anomalies are soil in nature with no visible evidence of radioactive material (i.e., DU fragments, uranium oxide). The anomalous areas have been identified as 44E1-SA, 44E2-SA, and 44E3-SP (Attachment 2). Exposure rates were measured between 13 mr/hr to 36 mr/hr at location 44E1-SA, 13 mr/hr to 15 mr/hr at location 44E2-SA, and at 20 mr/hr at location 44E3-SP. This information will be incorporated into the ER Site #44 SWMU investigation.

From November 11 to December 3, 1993, a passive soil-vapor-survey (SVS) investigation was conducted in the area surrounding Building 906 (NERI, 1994). No volatile organic compounds (VOCs) or semi-volatile organic compounds (SVOCs) were identified from the SVS investigation in the vicinity of the Building 906 septic system and leachfield.

The area surrounding Building 906 was part of a geophysical Surface Towed Ordinance Locator System (STOLS™) survey conducted in December 1993 (Geo-Centers, 1994) and an electromagnetic (EM) survey conducted in December 1993 (LAMB, 1994). No anomalies related to buried material, other than underground utilities, were identified.

On March 7 and 8, 1994, one borehole (TA2-BH-01) was drilled behind Building 906 located in the area of the abandoned dry well and the center of the leachfield (area suspected of highest contamination). The borehole was drilled to a total depth of 151 feet below ground surface (BGS). Soil samples were collected at depths of 3, 8, 14, 23, 30, 39, 52, 58, and 74.5 feet BGS. Analyses performed included: tritium for all samples; metals, HE compounds, radioisotopes, and total uranium for samples collected to a depth of 52 feet BGS; and VOCs and SVOCs for samples collected to a depth of 14 feet BGS.

Toluene was the only VOC detected, with concentrations of 6.2 ppb (6.5 feet BGS) and 6.9 ppb (10.25 feet BGS). Fluoranthene and bis (2-ethylhexyl) phthalate were the only SVOCs detected, fluoranthene at 370 mg/kg (6 feet BGS) and bis (2-ethylhexyl) phthalate at 530 mg/kg (11.6 feet BGS). Bis (2-ethylhexyl) phthalate is a common contaminant from latex gloves found as a result of sampling activities and is not usually a environmental contaminant. Additionally, bis (2-ethylhexyl) phthalate is not a constituent of concern at this site. No HE compounds were detected in any of the borehole soil samples.

The following two metals of concern (based on background information) were detected: lead (2.6 mg/kg to 6.2 mg/kg) and zinc (18.4 mg/kg to 53.9 mg/kg). SNL/NM background concentration for lead is 15 mg/kg and for zinc is 46.74 mg/kg . Tritium results ranged from $<$210 pCi/g to 340 pCi/g. A background tritium concentration has not been established for SNL/NM. However, results of a dose assessment using the RESRAD model indicate acceptable levels of tritium in soil based on DOE guidance. Total uranium results

ranged from 1.3 μg/g to 2.1 μg/g. SNL/NM background concentration for total uranium is 3.5 mg/kg. No other radioactive constituents were observed.

4.0 CONCLUSION

Comparison of analytical results to RCRA proposed Subpart S action levels shows that toluene, fluoranthene, and zinc are all below the prescribed action levels of 20,000 mg/kg, 3000 mg/kg, and 20,000 mg/kg, respectively. The results of the surveys and soil sampling indicate that there is no release of hazardous constituents from this site which pose a threat to human health or the environment.

5.0 REFERENCES

GEO-CENTERS, Inc. (Geo-Centers, 1994), "Final Technical Report STOLS™ Survey at Sandia National Laboratories Technical Area 2," January 1994.

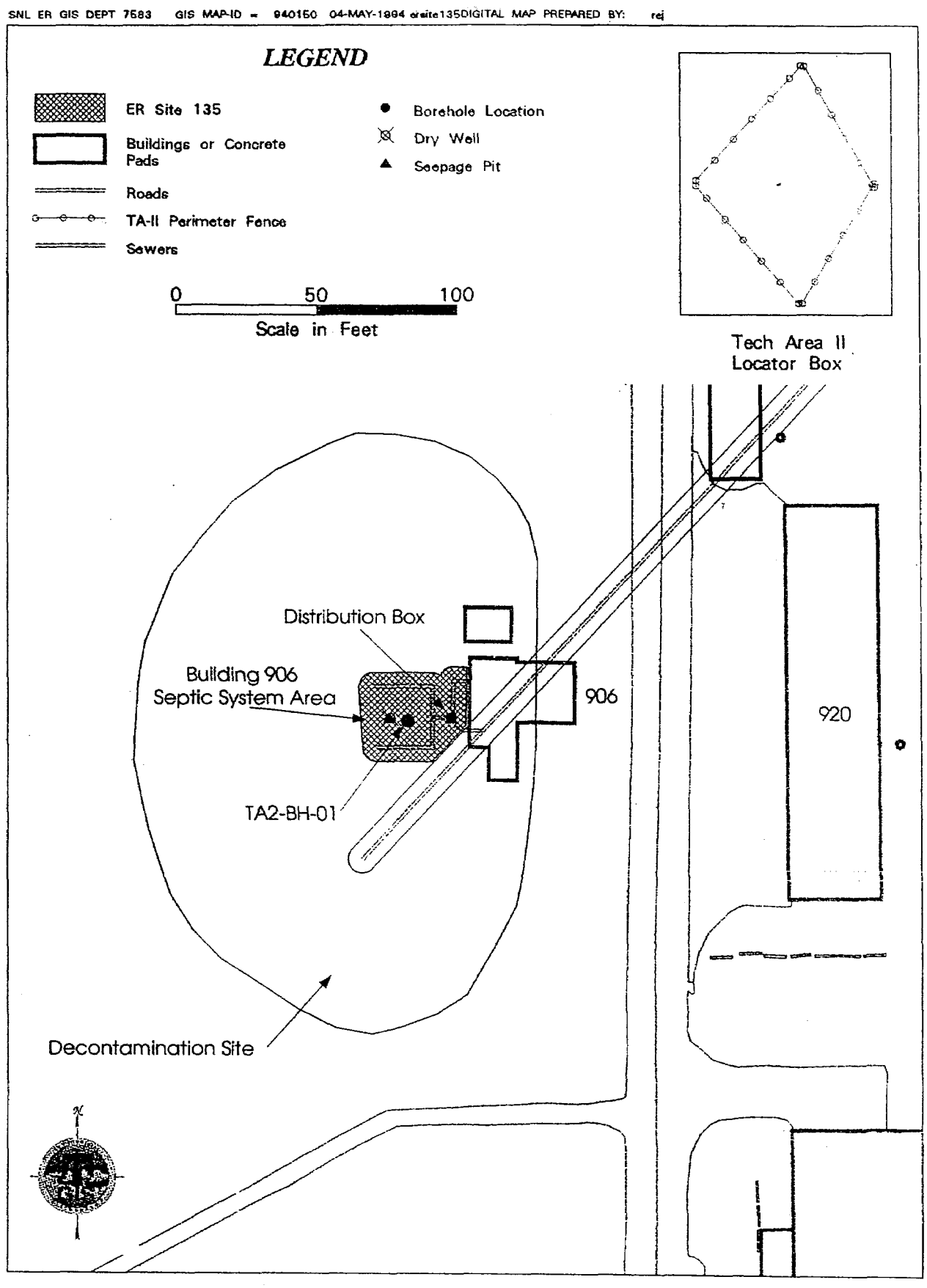
LAMB Associates, Inc. (LAMB, 1994), "Electromagnetic Surveys of Technical Area II Sandia National Laboratories," May 1994.

Northeast Research Institute LLC (NERI 1994), "PETREX Soil Gas Survey Results Conducted at Technical Area II," June 9, 1994.

6.0 LIST OF ATTACHMENTS

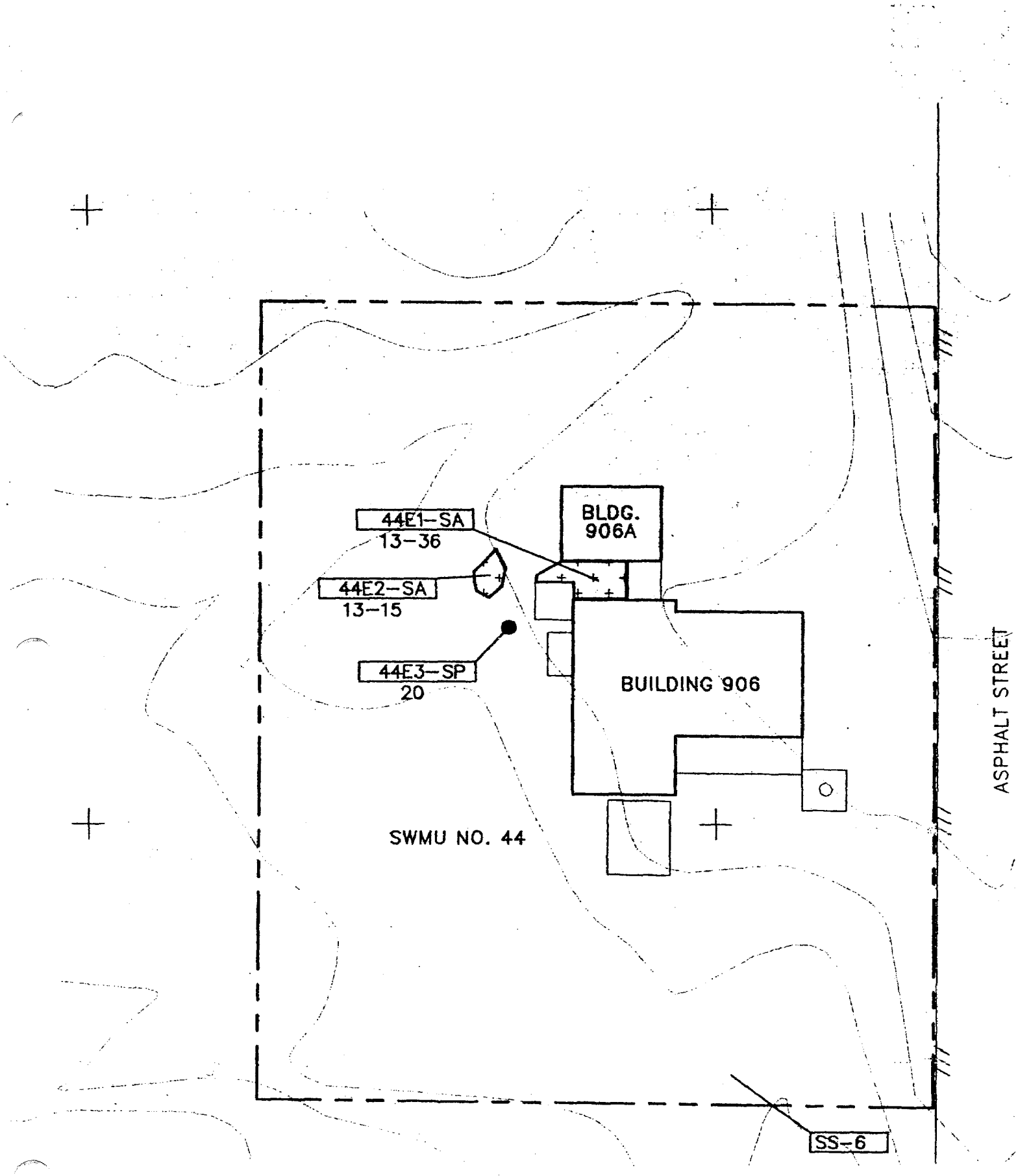
Attachment 1
Map showing the location of the Building 906 Septic System area, Technical Area II, SNL/NM

Attachment 2
Map showing the results of the surface radiation survey surrounding Building 906



Attachment 1

Map showing the location of the Building 906 Septic System area, Technical Area II, SNL/NM.



Attachment 2

Map showing the results of the surface radiation survey surrounding Building 906